WHAT IS CLAIMED IS:

1. An isolated DNA molecule encoding at least two different inward rectifier, G-protein activated, mammalian, potassium Kir3.0 polypeptides, wherein said nucleic acid is characterized by its ability to cause a change in potassium flow across a Xenopus oocyte cell membrane upon expression therein.

2. A nucleic acid acccording to Claim 1, wherein said mammalian Kir3.0 polypeptides are Kir3.1/KGA and Kir3.2.

3. A nucleic acid acccording to Claim 1, wherein said mammalian Kir3.0 polypeptides are Kir3.1/KGA and Kir3.3.

4. A nucleic acid acccording to Claim 1, wherein said mammalian Kir3.0 polypeptides are Kir3.2 and Kir3.3.

5. A nucleic acid according to Claim 2, wherein said Kir3.1/KGA polypeptide has the amino acid sequence of SEQ ID NO:2.

6. A method of producing a functional Kir3.0 channel in an expression host cell, the method comprising:

introducing into said expression host cell a nucleic acid encoding a first mammalian Kir3.0 polypeptide and a nucleic acid encoding a second mammalian Kir3.0 polypeptide into said heterologous cell under conditions that permit expression of said nucleic acids;

wherein said mammalian Kir3.0 polypeptides assemble to form a functional Kir3.0 in said expression host cell.

7. A method according to Claim 6, wherein said nucleic acid encoding said first mammalian Kir3.0 polypeptide and said nucleic acid encoding said second mammalian Kir3.0 polypeptide are present on a single vector.

8. A method according to Claim 6, wherein said nucleic acid encoding said first mammalian Kir3.0 polypeptide and said nucleic acid encoding said second mammalian Kir3.0 polypeptide are present on different vectors.

9. A method acccording to Claim 6, wherein said mammalian Kir3.0 polypeptides are Kir3.1/KGA and Kir3.2.

10. A method acccording to Claim 6, wherein said mammalian Kir3.0 polypeptides are Kir3.1/KGA and Kir3.3.

11. A method acccording to Claim 6, wherein said mammalian Kir3.0 polypeptides are Kir3.2 and Kir3.3.

12. A host cell comprising a functional heterologous Kir3.0 channel;

wherein said functional Kir3.0 channel comprises a first Kir3.0 polypeptide and a second mammalian Kir3.0 polypeptide assembled to form a functional Kir3.0 channel.

13. A host cell acccording to Claim 12, wherein said mammalian Kir3.0 polypeptides are Kir3.1/KGA and Kir3.2.

14. A host cell acccording to Claim 12, wherein said mammalian Kir3.0 polypeptides are Kir3.1/KGA and Kir3.3.

15. A host cell acccording to Claim 12, wherein said mammalian Kir3.0 polypeptides are Kir3.2 and Kir3.3.

16. A host cell according to Claim 12, wherein said host cell is a *Xenopus laevis* oocyte.

17. A method of screening for agents that modulate the activity of a Kir3.0 channel, the method comprising:

combining a candidate agent with a functional Kir3.0 channel under conditions that permit inward K^+ current

determining the induced current;

wherein a change in said induced current in the presence of said agent as compared to a control is indicative that said agent modulates the activity of a Kir3.0 channel.